APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,606	08/25/2003	S. Brandon Keller	100111233-1	2818

			EXAMINER
22879	7590	09/19/2005	SIEK, VUTHE

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ART UNIT	PAPER NUMBER
2825	

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/647,606	KELLER ET AL.
	Examiner	Art Unit
	Vuthe Siek	2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 July 2005</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/6/05*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to application 10/647,606 filed on 7/5/2005.

Claims 1-17 remain pending in the application.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made
> to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was
> made.

3.   Claims 1-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher

(US 2003/0221173).

4.   As to claims 1, 5, 7, 10, 13 and 17, Fisher teaches a method and apparatus (a

software tool) for detecting connectivity conditions in a netlist (hierarchical netlist)

described in block description language file stored in a database (Fig. 1-3 and its

description). The hierarchy of the netlist data file is traversed and nets and leaf cells are

identified. Connections between nets and leaf cells are identified. Therefore,

determinations are made as to whether the leaf cells are property connected to their

respective nets. The file describes CHIP_TOP 40 and go down the hierarchy until only

leaf cells are found by making a list of all non-leaf cell blocks in the design (example of

blocks 41 and 42) and making a list of all nets for each of the non-leaf cell blocks

connected (externally and internally of each non-leaf cell block). Once all of the nets

have connected for each of the non-leaf cell blocks, the tool loops through all nets

associated with each non-leaf cells and builds a list all leaf cells (lower level of the

hierarchy) connected to each net (0020-0023). For each leaf cell connected to a net, a

determination is made as to whether or not any of the aforementioned connectivity issue

exist (examples of connectivity issues are described in 0026). Accordingly, Fisher teach

traversing hierarchical interface connection in a plurality of hierarchical blocks by

performing for each block instance including for each port instance on the each block

instance and for each port in each of the hierarchical blocks to determine whether there

are connectivity issues. Since Fisher teaches the determinations are then used to

correct connectivity issues that may exist (see abstract), generating a warning indicating

the name of the port and port instance that are not connected is within the scope of

Fisher's patent application publication because the warning must be used as an

indication of connectivity issues to designers.

5.   As to claims 2-4, 6, 8-9, 11-12 and 14-16, Fisher teaches traversing the

hierarchical netlist file of an IC design from top down manner (initialization from top to

lower level of the hierarchy) in order to determine connectivity issues and the

determinations are used by designers (user terminal) to correct the connectivity issues

that may exist (Fig. 2-3 and its description; see summary).

Remarks

6.   Applicants argued that the claimed limitations are not obvious over the teachings

of Fisher. Examiner disagrees. Fisher teaches a method and apparatus for analyzing

connectivity conditions in the hierarchy of a netlist data file. The hierarchy of a netlist is

shown in Fig. 2 (0020, 0022). The method begins to traverse the hierarchy of the netlist

data file and nets and leaf cells are identified. Once the connections between nets and

leaf cells have been identified, determinations are made as to whether the leaf cells are

properly connected to their respective nets. Connectivity conditions are described in the

patent publication (0015) and identified by analyzing the connections between nets and

leaf cells. A message report is issued as a result of the determinations. Applicants

argued that Fisher does not teach or suggest for each port instance on each block

instance, determination is made whether the port instance is properly connected.

Examiner disagrees. Fisher teach many connectivity conditions are identified, where

the conditions include 1) zero-connects, which are unconnected block port; 2) one-

connects, which are ports of the leaf cells in the design that do not connect to other leaf

cells in the design; 3) gate-only nets, which are unconnected inputs to logic; 4) floating

net, which is when a given net connects to zero leaf cells; 5) port direction mismatches,

which is when a given net is ported and the direction of that port is different from the

direction of the leaf cell(s) to which it is connected; and 6) drive fights, which correspond

to a net driven by two or more cells of different type. During traversing the hierarchy of

a netlist as shown in Fig. 2, the defect detection software tool reads the top level block

of the hierarchy of the netlist file, then down the hierarchy until only leaf cells are found.

The tool makes a list of non-leaf cell blocks, then loops through all of the listed non leaf

cells, makes a list of nets for each of the non leaf cell blocks. Once all of the nets have

been collected for each of the non-leaf cells, the tool loops through all nets associated

with each non-leaf cells and build a list of all leaf cells connected to each net. For each

leaf cell connected to a net, a determination is made as to whether or note any

connectivity conditions issues exist and then issuing report for any connectivity defect.

As one can clearly see from the hierarchy of the netlist (Fig. 2), for each non-leaf cell

block (BLK_A41, BLK_B 42), there exist port instances connected by a net. Even

though Fisher teaches making a list of all nets for each of the non-leaf cells, making a

list of all port instances for each of the non-leaf cells is too obvious to one ordinary skill

in the practical art, because this would provide the same result as admitted by

applicants. Therefore, making a list of all nets for each non-leaf cells or making a list of

all port instances are interchangeable because it provide the same result. The claimed

limitations are too obvious to one of practitioners in the art, even one does not know the

art would realize that making a list of all port instances would be obvious from the

teachings of Fisher because a net is connected to a port. Whether listing a port

instance first or listing a net first, the determination of connectivity conditions provide the

same result. There is no improvement. The claimed limitations are too obvious and

should not be patentable.

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Vuthe Siek whose telephone number is (571) 272-1906.

The examiner can normally be reached on Increase Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Vuthe Siek

**VUTHE SIEK
PRIMARY EXAMINER**